

REMARKS

Claims 1-20 were pending in the above-identified application when last examined and stand rejected. The rejection was made final in the Office Action dated September 19, 2006. Claims 1-20 remain in the form previously examined, but for the following reasons, Applicants request reconsideration and withdrawal of the final rejection.

Claims 1, 3-10, 12-14, 17, 18, and 20 were rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Pat. App. Pub. No. 2004/0190836 (Kilian). Applicants respectfully traverse the rejection.

Independent claim 1 distinguishes over Kilian at least by reciting, "a sub-mount containing conductive traces exposed at a first surface of the sub-mount; ... and a reflector positioned to reflect an optical signal from the edge-emitting laser through the first surface and through the sub-mount." Kilian fails to disclose or suggest a structure that directs an optical signal through a surface on which traces of a sub-mount are exposed.

As Applicants previously noted, Fig. 1 of Kilian shows a light emitting device 30 mounted on a structure 22, which Kilian refers to as a cap and the Examiner relies on as corresponding to the sub-mount recited in claim 1. Kilian at paragraph [0026] states, "Bond wires or other electrical connections may be provided to connect the light emitting device 30 and monitor diode 32 to metallization contacts. Hermetically sealed feed-through connections 46 may be used to couple the metallization within the recess 28 to electrical contacts on the outside of the package." Accordingly, cap or sub-mount 22 contains connections 46. Fig. 1 also shows that light from device 30 reflects from cap or sub-mount 22 and passes through a plate 24, a lens 50, a grating 52, and a base 26. However, the light from device 30 does not pass through the cap 22 or any sub-mount that contains conductive traces. Kilian thus fails to disclose the combination of "a sub-mount containing conductive traces exposed at a first surface of the sub-mount; ... and a reflector positioned to reflect an optical signal from the edge-emitting laser through the first surface and through the sub-mount."

The structure of claim 1 provides advantages over those disclosed in Kilian because a sub-mount (of the type recited in claim 1) can be fabricated to implement electrical functions and still transmit an optical signal, e.g., provide electrical connections and an optical path. Further, the sub-mount of claim 1 does not require a depression. Such depressions complicate fabrication and die attachment but in Kilian's structures, are needed to reflect light beams. Kilian fails to disclose such problems or suggest a solution such as the recited structure of claim 1. Accordingly, claim 1 is patentable over Kilian.

Claims 3-9, 18, and 20 depend from claim 1 and are patentable over Kilian for at least the same reasons that claim 1 is patentable over Kilian.

Independent claim 10 distinguishes over Kilian by reciting, "mounting a die containing a laser on a surface of a sub-mount; electrically connecting the laser to electrical traces in the sub-mount; and attaching a reflector to the sub-mount in a position such that an optical signal from the laser is reflected through the sub-mount." As noted above, Kilian attaches light emitting device 30 to a cap or sub-mount 22 having a surface 38 that reflects light away from the sub-mount, so that the light travels through structures that provide none of the electrical traces or connections. Further, the reflector Kilian uses is a part of sub-mount 22, not attached to the sub-mount 22. Accordingly, claim 10 is clearly patentable over Kilian.

Claims 12-14 and 17 depend from claim 10 and are patentable over Kilian for at least the same reasons that claim 10 is patentable over Kilian.

For the above reasons, Applicants request reconsideration and withdrawal of the rejection under 35 U.S.C. § 102.

Claims 2, 11, and 19 were rejected under 35 U.S.C. § 103(a) as unpatentable over Kilian in view of U.S. Pat. No. 5,195,156 (Freeman). Applicants respectfully traverse the rejection.

Claims 2 and 19 depend from claim 1 and are patentable over Kilian for at least the same reasons that claim 1 is patentable over Kilian. In particular, Kilian fails to disclose or suggest a structure that directs an optical signal through a surface on which traces of a sub-mount are exposed.

Claim 11 depends from claim 10, which is patentable over Kilian at least because Kilian teaches reflecting an optical signal away from the cap containing the traces connected to a device.

The Examiner indicated in the Final Office Action that Freeman "is applied to supply the deficiency of the limitation reciting an alignment post." (See Final Office Action, page 6, lines 6-7.) Accordingly, combining Freeman with Kilian does not change the above analysis showing that independent claims 1 and 10 are patentable. Claims 2 and 19, which depend from claim 1, and claim 11, which depends from claim 10, are thus patentable over the combination of Kilian and Freeman for at least the same reasons that their respective base claims are patentable over Kilian.

Applicants therefore request reconsideration and withdrawal of this rejection under 35 U.S.C. § 103.

Claims 15 and 16 were rejected under 35 U.S.C. § 103(a) as unpatentable over Kilian in view of U.S. Pat. No. 5,822,352 (Mizutani). Applicants respectfully traverse the rejection.

Claims 15 and 16 depend from claim 10, which is patentable over Kilian for the reasons set forth above. Mizutani is directed to fabrication of semiconductor optical systems on a substrate, not to packaging that attaches a die to a sub-mount. Combining Mizutani with Kilian does not change the above analysis showing claim 10 is patentable. Claims 15 and 16 are thus patentable over the combination of Kilian and Mizutani for at least the same reasons that claim 10 is patentable over the combination of Kilian and Mizutani.

For the above reasons, Applicants request reconsideration and withdrawal of the rejection under 35 U.S.C. § 103.

In conclusion, Applicants respectfully request withdrawal of the final rejection and allowance of the application including claims 1-20. Please contact the undersigned attorney at (408) 927-6700 if there are any questions concerning this document.

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Respectfully submitted,



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